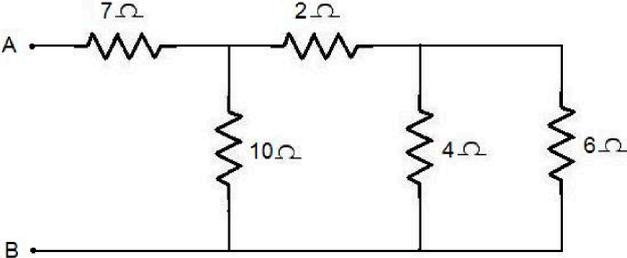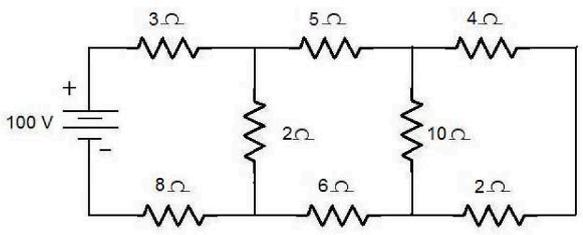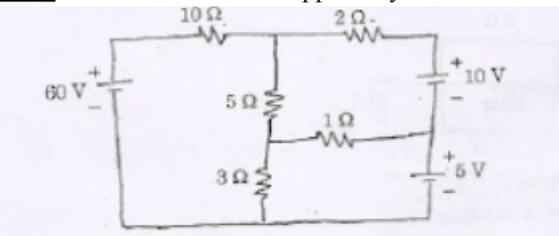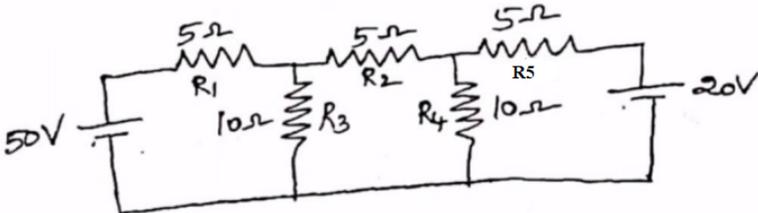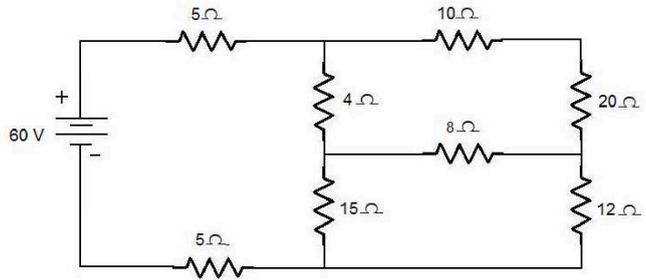| VELAMMAL COLLEGE OF ENGINEERING AND TECHNOLOGY, MADURAI – 625 009			
Department of Electronics and Communication Engineering			
INTERNAL ASSESSMENT - I			
Branch	ECE	Year/Sem./Sec.	I/II/A,B& C
Course Code	21ECE102	Date	
Course Name	Circuit Analysis	Max. marks	50
Course Incharge	Dr. K. Kavitha , Dr. S. Gandhimathi @ Usha & Ms. J. Rajeswari	Time	01:40 Hours

PART A

Sl.No	QUESTION	K	CO	Marks
1	**Define** Ohm's Law and its limitations.	K1	CO1	2
1	**Define** Kirchoff's Voltage law.	K1	CO1	2
1	**Define** Kirchoff's Current law.	K1	CO1	2
2	The resistance of two wires is 25Ω when connected in series and 6Ω when connected in parallel. **Find** the resistance of each wire.	K1	CO1	2
2	**Solve** the equivalent resistance between A and B in the given circuit	K3	CO1	2
2	**Explain** current division rule.	K2	CO1	2
3	**Show** the expression of equivalent resistance for 'n'- number of resistors in parallel connection	K1	CO1	2
3	**Compute** the current in 50Ω resistor in the given circuit	K2	CO1	2
3	**Define** voltage division rule	K1	CO1	2
4	Two 20Ω resistors are connected in series. When a resistor R is connected across one of them, the total resistance of the network becomes 30Ω. **Find** the value of R.	K1	CO1	2
4	**Compute** the voltage V_{out}.	K2	CO1	2
4	**Compare** mesh and nodal analysis.	K2	CO1	2
5	**What** are the types of sources?	K1	CO1	2
5	**Compute** the equivalent resistance for the circuit shown:	K2	CO1	2
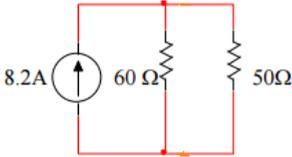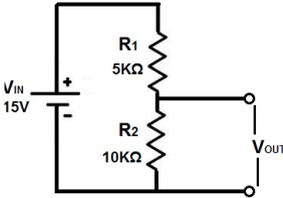
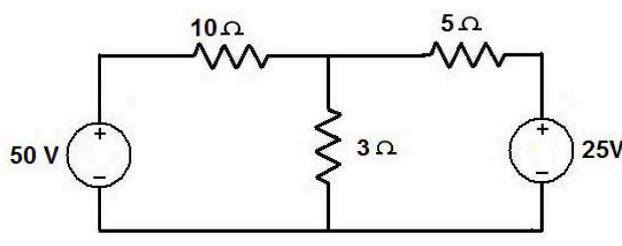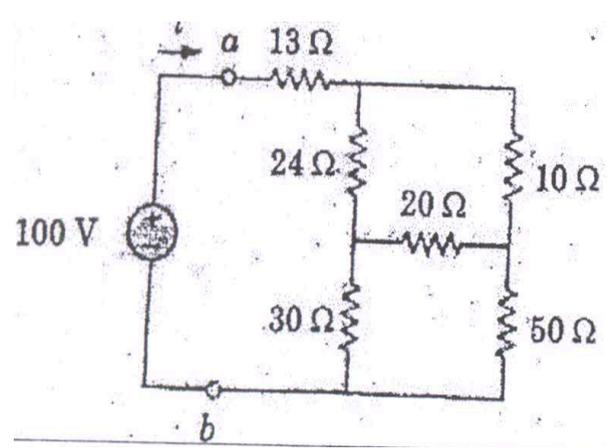|				
5	**Transform** the following voltage source to current source: 	K2	CO1	2
6	**Find** the voltage source equivalent for the circuit: 	K1	CO1	2
6	**Compute** the current through R3 in the circuit: 	K2	CO1	2
6	The equivalent resistance of three resistors in series is 750 ohms. Two of the resistors are 40 and 410 ohms. **What** must be the ohmic resistance of the third resistor?	K1	CO1	2
7	**Define** Superposition theorem.	K1	CO2	2
7	**What** is the limitation of superposition theorem?	K1	CO2	2
7	Given that the resistors Ra, Rb and Rc are connected electrically in star. **Write** the equations for resistors in equivalent delta.	K1	CO2	2
8	A Y-connected resistive network consists of 3 ohm in each arm. **Translate** to the equivalent delta-connected network and insert the values.	K2	CO2	2
8	**Translate** to equivalent delta circuit for the given star network.	K2	CO2	2
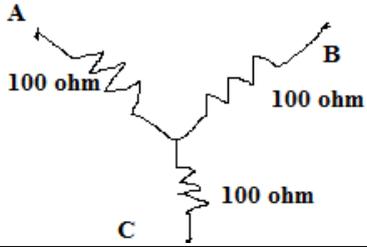
		K	CO	Marks
8	Each of the three arms of a delta connected network has resistance of 4ohm. **Translate** to equivalent star connected network.	K2	CO2	2

PART B

Sl.No	QUESTION	K	CO	Marks
9	**Solve** and find the current through each branch using mesh analysis	K3	CO1	13
9	**Solve** and find the current supplied by the source using mesh analysis	K3	CO1	13
9	**Use** nodal voltage method to find the current in the resistances R3 and R4 in the network shown below.	K3	CO1	13
9	In the network shown below, **solve** and find the current delivered by the battery.	K3	CO1	13
10	In the network shown in below fig (a) let R=80Ω, **find** R_{eq} (b) find R if R_{eq}=80Ω (c) find R if R= R_{eq}	K3	CO1	13

10	**Solve** and Find the node voltages in the circuit	K3	CO1	13
10	**Identify** the current through 2 ohm resistor and the total current delivered by the battery.	K3	CO1	13
10	**Solve** and Find the current in 1 ohms resistor	K3	CO1	13
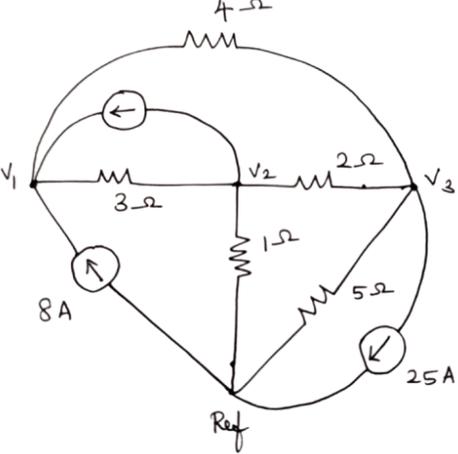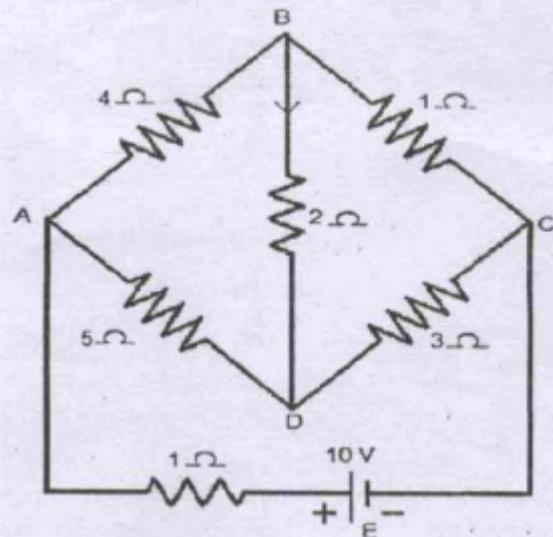
PART C
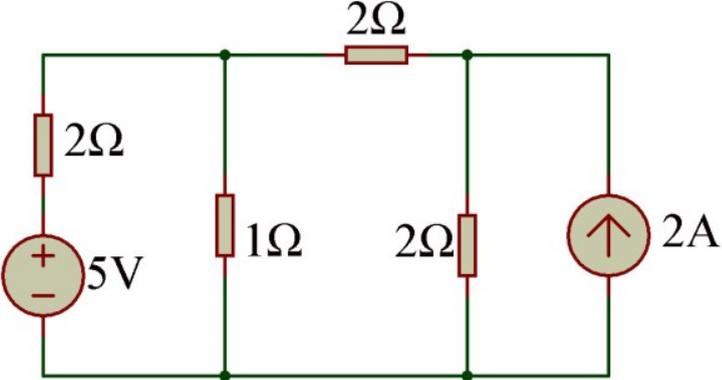
Sl.No	QUESTION	K	CO	Marks
11	**Solve** and find the current in each resistor using superposition principle of the circuit	K3	CO2	8
11	**Make use of** star to delta transformation to determine the equivalent resistance between terminals ab for the given circuit	K3	CO2	8
11	**Identify** the current in 10 ohms resistor using superposition theorem	K3	CO2	8
11	**Make use of** star-delta transformation to determine the equivalent resistance of the circuit shown in below fig	K3	CO2	8
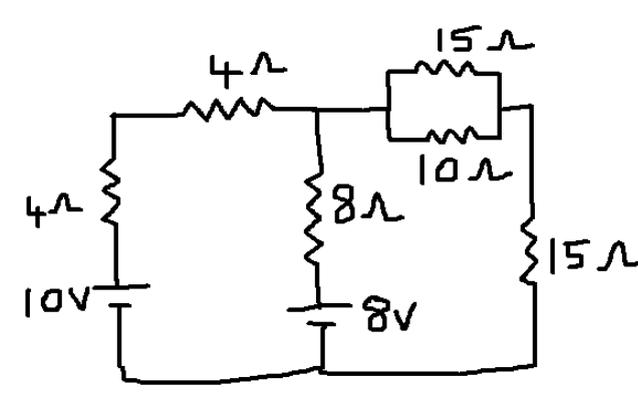
6 Ω　　　4 Ω

5 Ω　3 Ω

R_{eq}　　4 Ω　8 Ω　10 Ω